

TITLE 312 NATURAL RESOURCES COMMISSION

Emergency Rule LSA Document #12-620 (E)

DIGEST

Temporarily adds noncode provisions, formerly governed by LSA Document #11-779(E), posted at 20111228-IR-312110779ERA, to govern the requirements for plugging and abandoning wells for oil and gas purposes under IC 14-37 and to assist with the implementation of P.L.140-2011. Effective January 15, 2013.

SECTION 1. (a) This document applies to any well for oil and gas purposes, including a noncommercial gas well and a noncommercial coal bed methane well. The document assists in implementation of IC 14-37 and supplements 312 IAC 16.

(b) To the extent a requirement in 312 IAC 16 conflicts, the requirements of this document control.

SECTION 2. The definitions in IC 14-8-2 and 312 IAC 16-1 and the following definitions apply throughout this document:

(1) "Bottom plug" means a plug or series of plugs placed in the deeper sections of a well in order to confine hydrocarbons or other formation fluids in their original strata and to prevent the migration of fluids between formations through an annular space or within a string of casing.

(2) "Bullhead plugging" means placement of cement used in plugging a well by pumping cement under pressure down the casing through a connection at the top of the casing or the well head.

(3) "Cased well" means a well in which production casing has been set and cemented.

(4) "Cement" means ground clinker generally consisting of hydraulic calcium silicates and aluminates and usually containing one (1) or more forms of calcium sulfate as an interground additive. The term is also commonly referred to as "Portland cement".

(5) "Circulated cement", when used in reference to the setting of a string of casing, means the use of sufficient cement to completely fill the annular space behind the casing and to flow the cement to the surface.

(6) "Circulation method" means placement of cement used in plugging a well by circulating cement by positive pressure displacement through tubing set at a specified depth in the well.

(7) "Directional well" means a well purposely deviated from the vertical, other than a horizontal well, to reach a target formation.

(8) "Dry hole" means an uncased exploratory or development well for oil and gas purposes that the owner or operator determines is:

(A) incapable of producing oil, gas, or coal bed methane in sufficient quantities to justify

completion of the well as a production well; or
(B) otherwise unsuitable for its intended use.

(9) "Dump bailer method" means placement of cement used in plugging a well by using a dump bailer on a wire line.

(10) "Horizontal drain hole" mean the portion of a well bore with seventy (70) degrees to one hundred ten (110) degrees deviation from the vertical drilled at least one hundred (100) feet into the producing interval beginning at the point where the well bore penetrates the producing interval and ending at the farthest point drilled within the producing interval.

(11) "Horizontal well" means any well that is developed with at least one (1) horizontal drain hole.

(12) "Kick-off point" means the point in the vertical section of a well where the wellbore is deviated intentionally from vertical in order to complete a directional or horizontal well.

(13) "Top plug" means a plug or series of plugs placed in the shallower sections of a well located between the deeper of fifty (50) feet below the lowermost commercially minable coal resource, or the lowest underground source of drinking water, and extending to the surface.

(14) "Uncased well" means a well in which production casing is either not set or not cemented.

SECTION 3. (a) For an activity governed by IC 14-37 that provides for the placement of cement, an owner or operator must satisfy this SECTION.

(b) The cement shall comply with:

(1) "Specification for Cements and Materials for Well Cementing", American Petroleum Institute, API Specification 10A, Twenty-Fourth Edition (December 2010); and

(2) "Standard Specification for Portland Cement", ASTM International, ASTM Standard C150/150M-11 (May 2011).

(c) To plug a well under this document, the cement shall be class A, C, or H, as described in the "Specification for Cements and Materials for Well Cementing" referenced in subsection (b)(1), with a minimum weight of thirteen (13) pounds per gallon, unless the cement contains additives that improve the ability of the cement to provide necessary protection and that maintains a minimum compressive strength of five hundred pounds per square inch (500 psi) after seventy-two (72) hours.

SECTION 4. An owner or operator must plug and abandon a well that:

(1) is completed as a dry hole;

(2) ceases to produce oil, natural gas, or coal bed methane; or

(3) is no longer operated for the purpose for which the well is permitted;

unless the owner or operator is authorized to delay the plugging and abandonment of the well under SECTION 6 of this document.

SECTION 5. (a) An owner or operator of a well is responsible for plugging a well under IC 14-37, 312 IAC 16, and this document.

(b) A person other than an owner or operator who intends to plug a well, or to reenter and clean out a previously plugged well for the purpose of replugging the well, is subject to:

- (1) the notice and plan requirements of SECTIONS 7 through 10 of this document;**
- (2) the requirements of SECTIONS 11 through 19 of this document;**
- (3) the requirement to file well plugging reports under SECTION 22 of this document; and**
- (4) the requirements for well site cleanup and restoration under SECTION 23(b) of this document.**

SECTION 6. (a) An owner or operator may delay the plugging and abandoning of a well as required under SECTION 4 of this document for a well that has been drilled, completed, and cased for production, if the owner or operator satisfies the requirements for:

- (1) deferring abandonment of the well under subsection (b); or**
- (2) temporarily abandoning the well under subsection (c).**

(b) An owner or operator of a well may defer plugging and abandoning the well for not more than one (1) year, or any lesser period prescribed by the division director, if the well conforms to the requirements of this document. To defer plugging and abandoning a well under this subsection, the owner or operator must notify the division in writing of the intention to defer abandonment of the well. The notice must be given to the division within sixty (60) days after the later of the following:

- (1) The date of the completion and casing of the well.**
- (2) The date on which the operation of the well is terminated.**

(c) An owner or operator of a well may temporarily abandon a well if the well conforms to the requirements of this document. To temporarily abandon a well under this subsection, the owner or operator must file with the division, on a form prescribed by the division, an application for temporary abandonment. The application must be filed within sixty (60) days after any of the following:

- (1) The date on which the drilling and casing of the well is completed.**
- (2) The date on which the operation of the well is terminated.**
- (3) The expiration of the period during which the owner or operator defers abandoning the well under subsection (a).**

SECTION 7. (a) Except as provided under SECTIONS 8 and 9 of this document, the owner and operator must give written notice of intent to plug an existing well to the division at least ten (10) days before commencing the plugging of the well.

(b) The written notice required by subsection (a) shall be on a form prescribed by the division.

(c) Unless a well plugging plan has been submitted to the division for approval, the notice required under subsection (b) must include a plan for plugging the well that:

- (1) describes the specific methods that would be used;
- (2) specifies the date on which plugging operations are scheduled to commence, if known; and
- (3) indicates compliance with this document, including the location of each cement plug to be placed in the well.

SECTION 8. (a) Unless an emergency condition or an urgent condition exists under SECTION 9 of this document, in addition to the written notice and plan required under SECTION 7 of this document, an owner or operator must provide notice to the oil and gas inspector assigned to the well of the date and time on which well plugging operations are scheduled to commence as specified in this SECTION. Notice shall consist of at least one (1) of the following:

- (1) Written notice delivered in person to the inspector.
- (2) An e-mail message sent to the inspector, with a read-receipt request verifying the date and time the inspector read the message.
- (3) Verbal communication provided in person or by telephone to the inspector.
- (4) A voice mail message left on the telephone of the inspector and either:
 - (A) verbal communication in person or by telephone with the oil and gas field supervisor; or
 - (B) voice mail message left on the telephone of the oil and gas field supervisor.

(b) Unless a shorter time for notification is agreed between the oil and gas inspector and the owner or operator, the owner or operator must give the notification required subsection (a) at least:

- (1) twelve (12) hours before the time to commence plugging operations when a well is to be plugged as a dry hole immediately following completion of drilling or drilling operations; or
- (2) forty-eight (48) hours before the time scheduled to commence plugging operations for a well not described in subdivision (1).

(c) An owner or operator must not commence plugging operations without an oil and gas inspector present, unless the owner or operator has:

- (1) complied with the notice requirements of this SECTION; and
- (2) obtained division approval for a plugging plan.

SECTION 9. (a) If an emergency condition or an urgent condition exists which requires immediate plugging of a well, an owner or operator may commence well plugging operations upon verbal communication of the plan for plugging the well to, and receipt of approval from, at least one (1) of the following:

- (1) The division director.**
- (2) The assistant director for inspections and enforcement.**
- (3) The oil and gas field supervisor.**

(b) For purposes of this SECTION, an emergency condition exists if a well is leaking or discharging oil, gas, or other fluids in quantities that are capable of:

- (1) causing substantial harm to the environment; or**
- (2) posing an immediate threat to public health or safety.**

(c) For purposes of this SECTION, an urgent condition exists if delay in plugging a well is likely to result in a substantial increase in the cost to plug the well due to impending weather or other conditions that are beyond the control of the owner or operator.

(d) An oil and gas inspector must be present during the plugging of a well under this SECTION if the presence of the inspector is required in the approval given under subsection (a).

SECTION 10. The division director may require an owner or operator to redrill and replug a well if the owner or operator does not comply with the requirements of SECTIONS 7 through 9 of this document.

SECTION 11. (a) This SECTION contains requirements for handling and storing plugging fluids that result from well plugging operations.

(b) When plugging a well, the owner or operator must provide at least one (1) pit or leak-free, portable aboveground tank into which plugging fluid wastes are deposited.

(c) An owner or operator must construct and maintain pits with capacity sufficient to contain all plugging fluids and to prevent overflow during plugging operations. A plugging pit shall be used only for temporary storage of plugging fluid wastes and not to dispose of general oilfield wastes.

SECTION 12. (a) This SECTION prohibits the placement or use of unauthorized materials to plug a well.

(b) Except for an unavoidable loss of drilling and logging tools, production equipment, or damaged casing obstructing a well bore, an owner or operator must not place or allow a substance in an unplugged well to fill or bridge the hole. Before plugging operations commence, any unauthorized substance shall be removed.

SECTION 13. (a) This SECTION applies to plugging a bridged well.

(b) If drilling or logging tools, production equipment, or damaged casing obstruct a well bore, and removal of the obstruction is impracticable, the division

director may modify the plugging requirements of this document by specifying alternative plugging requirements.

(c) In determining whether to approve alternative plugging requirements, the division director shall consider the following:

- (1) The time and cost of removing lost tools or equipment.
- (2) The depth of the lost tools or equipment in relation to the depth of underground sources of drinking water.
- (3) The condition of the well, including well construction and whether caving or other conditions may pose a substantial risk to further loss of tools or equipment.
- (4) The potential for upward migration of well bore fluids into an underground source of drinking water.

SECTION 14. (a) This SECTION establishes requirements for setting a bottom plug in a dry hole or another well in which production casing is not set and cemented.

(b) Immediately after drilling ceases, an owner or operator must plug any well in which production casing is not set and cemented under this SECTION.

(c) The hole shall be filled with drill cuttings or mud extending from the bottom of the well to at least fifty (50) feet below the deeper of:

- (1) a commercially minable coal resource identified under SECTION 3 of LSA Document #12-503(E), posted at 20120829-IR-312120503ERA; or
- (2) the base of the lowermost underground source of drinking water.

SECTION 15. (a) This SECTION establishes requirements for setting a bottom plug in a cased well other than a horizontal coal bed methane well.

(b) If cement is not present outside a casing at each cement plug required in this SECTION, an owner or operator must remove, perforate, part, or rip the casing at fifty (50) foot intervals to ensure adequate cement is placed in the annular space behind the casing. The division may require an owner or operator to run a cement bond-variable density log if sufficient information is not otherwise available to determine the top of the cement outside the casing.

(c) If an owner or operator uses the circulation method, and except as provided in subsection (f), a cement plug must be placed across each completed interval. The bottom cement plug shall be set beginning from the shallower of:

- (1) fifty (50) feet below the deepest completed interval; or
 - (2) total depth or plugged back total depth.
- The plug shall extend up to two hundred fifty (250) feet above the uppermost completed interval.

(d) If an owner or operator uses the dump bailer method, and except as provided in subsection (f), a cast iron bridge plug must be set inside the cemented portion of the casing immediately above either:

(1) each completed interval with a minimum of ten (10) feet of cement placed on top of each cast iron bridge plug; or

(2) the lowermost completed interval and the well bore casing filled with cement to fifty (50) feet above the top of the uppermost completed interval, with the production casing or wellbore annulus filled with cement to fifty (50) feet above the uppermost completed interval.

(e) Regardless of the method used for placing cement, an owner or operator must place a cast iron bridge plug in any well that is flowing gas or fluid to the surface.

(f) Instead of setting a bottom plug under subsection (c) or (d), an owner or operator may:

(1) If using the circulation method, place cement from total depth to three (3) feet below ground elevation.

(2) For any well with two (2) or fewer completed zones and circulated casing, surface pumping or bullhead pumping of cement from the uppermost perforated zone to three (3) feet below the surface.

Bullhead plugging is prohibited for any well flowing gas or fluid to the surface.

(3) For a horizontal well other than a horizontal coal bed methane well, instead of setting the cement bottom plug from total depth or plugged back total depth, either of the following methods may be used:

(A) The wellbore shall be filled with mud up to the kick-off point, and a cement plug of not less than two hundred fifty (250) feet shall be placed above that point.

(B) A cast iron bridge plug shall be set inside the cemented production casing below the kick-off point as low in the well as the curve will allow, and a cement plug of not less than two hundred fifty (250) feet shall be placed on top of the bridge plug.

SECTION 16. (a) This SECTION establishes requirements for the setting of bottom plugs in horizontal coal bed methane wells.

(b) Unless prior written consent is received under IC 14-37-4-8.5(f) and IC 14-37-4-8.5(g), an owner or operator must plug the horizontal drain hole portions of a coal bed methane well using the type and amounts of plugging materials specified in the plan previously approved under SECTION 3(c)(4) of LSA Document #12-430(E), posted at 20120725-IR-312120430ERA.

(c) The use of materials to plug horizontal drain hole portions of a coal bed methane well of a different type or the use of different amounts than specified in the plan previously approved under SECTION 3(c)(4) of LSA Document #12-430(E), posted at 20120725-IR-312120430ERA, may be used only if written consent is given by the coal owner and the director finds that such types or amounts of plugging

materials are not likely to result in waste of the commercially minable coal resource or adversely affect the health and safety of underground miners.

(d) This SECTION does not require an operator to plug the horizontal drain hole portion of a coal bed methane well, if the coal owner has given written consent to the drilling of the well under IC 14-37-4-8.5(f) and IC 14-37-4-8.5(g).

SECTION 17. Upon completion of the plugging of horizontal drain hole portions of a coal bed methane well, the owner or operator must either:

(1) place a cement bottom plug beginning from the plugged back total depth and extending for a minimum distance of two hundred fifty (250) feet above that point:
or

(2) use mud to fill the well bore from plugged back total depth up to the kick-off point and place the cement bottom plug at the beginning of the well curve kick-off point and extending for a minimum distance of two hundred fifty (250) feet above that point.

SECTION 18. (a) This SECTION establishes requirements for filling intervals between plugs required by this document.

(b) Unless specified otherwise, the uncemented intervals between any plugs required under this document may be filled with:

- (1) pea gravel;
- (2) crushed rock;
- (3) mud or bentonite gel; or
- (4) water.

SECTION 19. (a) This SECTION establishes requirements for plugging a well for oil and gas purposes to protect a coal seam identified as a commercially minable coal resource.

(b) Before preparing the notice and plan for well plugging under SECTION 7 of this document, the owner or operator must determine if a well is located within an area considered a commercially minable coal resource under SECTION 3 of LSA Document #12-503(E), posted at 20120829-IR-312120503ERA.

(c) If a well to be plugged is located within an area considered a commercially minable coal resource under SECTION 3 of LSA Document #12-503(E), posted at 20120829-IR-312120503ERA,, the owner or operator must submit a copy of the proposed well plugging plan to the coal owner, lessee, or other person with the right to develop the commercially minable coal resource by underground mining methods. Proof of notification may be demonstrated by one (1) or more of the following:

(1) A receipt from certified mail or other courier which provides proof of delivery.

(2) A signed and dated written statement from each party entitled to notification that identifies the well to be plugged and acknowledges the receipt of the plugging plan.

(3) Copies of the plugging plan containing a dated signature from each party entitled to notification, acknowledging the receipt of the plan.

(d) A person with a coal interest shall be given at least fifteen (15) days to:

(1) review the plan;

(2) recommend any suggested revisions to the owner or operator which the person with a coal interest believes are necessary to provide increased protection of the commercially minable coal resource as provided in subsection (d); and

(3) determine whether the person with a coal interest will pay for any additional costs which might result from the use of the additional coal seam protection measures.

(e) If a person with a coal interest determines additional coal seam protection measures are needed to meet the requirements of the U.S. Mine Safety and Health Administration, and the person intends to seek U.S. Mine Safety and Health Administration approval to conduct underground coal mining operations in close proximity to the affected oil and gas well, the person may request the owner or operator to do either or both of the following:

(1) Set the cement plug required under this SECTION beginning at a point deeper than fifty (50) feet below each coal seam.

(2) Include commonly used additives that result in expansion of the cement mixture as it cures.

(f) An owner or operator must prepare a well plugging plan that includes the additional coal seam protection measures requested under subsection (d) if:

(1) the additional protection measures are consistent with commonly accepted practices for coal seam protection for similar wells plugged in the Illinois basin; and

(2) the person with a coal interest agrees to pay for any additional costs that might result from the use of the additional coal seam protection measures.

(g) An owner or operator is responsible only for setting the coal seam plug under the requirements of subsection (h) if the person with a coal interest:

(1) does not respond within the fifteen (15) day period described in subsection (c); or

(2) provides written notification that no special plugging requirements are necessary.

(h) If cement is not present on the outside of the casing throughout the interval of each cement plug required in this SECTION, the casing shall either be removed, perforated, parted, or ripped at fifty (50) foot intervals to ensure that adequate cement is also placed in the annular space behind the casing. The division may require an owner or operator to run a cement bond-variable density log if sufficient

information is not otherwise available to determine the top of the cement outside the casing.

(i) Except as provided under subsections (c) through (e) and (i), an owner or operator must set a cement plug beginning from a depth of at least fifty (50) feet below each coal seam considered a commercially minable coal resource under SECTION 3 of LSA Document #12-503(E), posted at 20120829-IR-312120503ERA, and extending to a depth of three (3) feet below ground elevation. If the top of the uppermost commercially minable coal resource is greater than two hundred (200) feet below the base of the lowermost source of underground drinking water, the top of the cement plug may extend to a depth of one hundred (100) feet above the uppermost commercially minable coal resource.

(j) The requirements of this SECTION do not apply to the plugging of a coal bed methane well if the consent of the coal owner or coal lessee is granted under IC 14-37-4-8.5(d)(2).

SECTION 20. (a) This SECTION establishes requirements for setting a top plug in a well.

(b) If cement is not present outside of a casing string throughout the interval of the cement plug required in this SECTION, an owner or operator must remove, perforate, part, or rip the casing at fifty (50) foot intervals to ensure adequate cement is placed in the annular space behind each casing string. The division may require an owner or operator to run a cement bond-variable density log if sufficient information is not otherwise available to determine the top of the cement outside the casing.

(c) Unless a top plug has been set in conjunction with the coal seam protection plug that extends to a depth of three (3) feet below ground elevation, an owner or operator must set a top plug beginning from a depth of at least fifty (50) feet below the lowermost underground source of drinking water and extending to a depth of three (3) feet below ground elevation.

(d) Within seventy-two (72) hours after setting a cement plug under subsection (c), an owner or operator must confirm the level of the top of the cement within the casing and outside the casing. The owner or operator must fill the casing and well annulus with:

- (1) bentonite chips or cement to within three (3) feet of the ground elevation, if the top plug has fallen back no more than thirty-three (33) feet; or
- (2) cement using the circulation method, if the top plug has fallen back more than thirty-three (33) feet.

(e) To facilitate identifying the location of the plugged well in the future, if no surface casing or production casing remains in a well, the owner or operator must place a steel plate at least one-quarter (1/4) inch thick and not less than eight (8)

inches in diameter at the top of the cemented well bore. The steel plate shall be encased or incorporated in the cement within one (1) foot of the top of the cement and approximately three (3) feet below ground elevation.

SECTION 21. The division director may approve the use of plugging materials other than cement, if an owner or operator demonstrates the materials provide equal or greater protection to commercially minable coal resources and underground sources of drinking water and adequately prevent movement of any oil, gas, coal bed methane, and other fluids from the original formations.

SECTION 22. (a) This SECTION establishes the responsibility of an owner or operator to file well plugging reports.

(b) Within thirty (30) days following completion of well plugging operations under SECTIONS 14 through 19 of this document, the owner or operator must complete and file a plugging report with the division on a form provided by the division. The report shall:

- (1)** describe in detail the specific methods used to plug the well including the types and amounts of cement;
- (2)** be signed by the well owner or operator and the person who performed the well plugging operations; and
- (3)** include an affidavit certifying that the well was plugged under IC 14-37-8 and the requirements of this document.

(c) Accompanying the plugging report required by subsection (b), the owner or operator must provide copies of the following:

- (1)** Cement tickets documenting the type and amount of cement used.
- (2)** Job tickets for all wireline services used during the well plugging operations.
- (3)** Cement bond-variable density logs, if run during the plugging operations.

SECTION 23. (a) This SECTION establishes responsibility of an owner or operator for final abandonment and reclamation of a well site following completion of well plugging operations.

(b) Within six (6) months after a well is plugged, the owner or operator must do the following:

(1) Cut off and remove all casing from three (3) feet below ground elevation to the surface.

(2) Remove the free liquid fraction of the plugging fluid waste from workover tanks or pits consisting of produced water, crude oil, and other production or plugging fluids. These fluids shall be either:

- (A)** disposed in a Class II injection well; or
- (B)** stored temporarily on site in suitable aboveground tanks or containers before disposal at an authorized waste treatment or disposal facility.

(3) After removal of the free liquid under subdivision (2), any remaining waste may be solidified and disposed by on-site burial at least three (3) feet below the ground surface.

(4) Fill and grade all plugging or workover pits to return the site to the original use with no subsidence or leakage of fluid, and if the use was agricultural, with sufficient compaction to support farm equipment.

(5) Except as otherwise provided in this subdivision, remove drilling and production equipment, rock or concrete bases, substructures, machinery, and equipment debris associated with the well. Rock or concrete bases may be buried on-site, if buried at least three (3) feet below ground surface. A landowner may assume responsibility for any equipment or structures, if the landowner submits a written release to the division on a division form that identifies any equipment or structure for which a landowner is assuming responsibility.

(6) Restore the well site as nearly as practicable to its condition before drilling.

(c) Within six (6) months after the last well on a lease is plugged, an owner or operator must do the following:

(1) Backfill and regrade all excavations.

(2) Clean, backfill, and regrade any pits and concrete storage structures used to store produced fluids.

(3) Clean and remove all tanks, separators, and other aboveground storage vessels.

(4) Clean and remove all aboveground flow lines.

(5) Demolish or remove all buildings, electric power lines and poles, pump houses, or other structures used in a production operation unless written authorization is obtained from the surface owner to leave a facility in place. The written authorization shall be submitted to the division on a division form that identifies any equipment and structure for which a landowner is assuming responsibility.

(6) Remove all containment dikes and backfill and regrade the tank battery facility location.

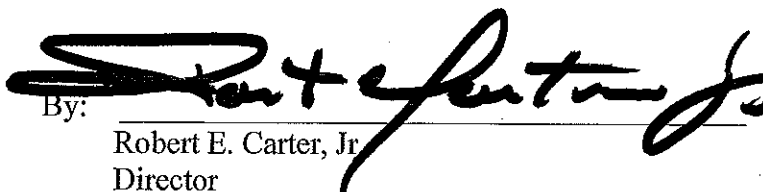
(7) Remove and properly dispose of any remaining production equipment, pipes and fittings, concrete pads, equipment debris, contaminated soil, and general oilfield waste.

SECTION 24. SECTIONS 1 through 23 of this document take effect on January 15, 2013.

Rule Signature Page

Rule #: LSA # 12-620(E)
Agency: Natural Resources Commission
Subject: Petroleum Well Plugging Renewal

ADOPTED:

By:  Date: 11/30/2012
Robert E. Carter, Jr.
Director
Department of Natural Resources

ACCEPTED FOR FILING:

TITLE 312 NATURAL RESOURCES COMMISSION

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